

**Large-Scale Demonstration & Deployment**

**Los Alamos  
NATIONAL LABORATORY  
*Environmental Science and  
Waste Technology***

**TECHNICAL DEMONSTRATION SUMMARY SHEET;  
AeroGo Air Casters for Large Crate Movement**

**The Need:** Los Alamos National Laboratory (LANL) is currently retrieving previously packaged oversized metal objects for processing and repackaging to meet the requirements for disposal at the LANL Solid Waste Disposal Area as low-level waste or for shipment to the DOE Waste Isolation Pilot Plant (for disposal as transuranic waste). The items are in fiberglass-reinforced plywood crates of varying size, of up to 40 feet long. An improved material-handling system for movement of the crates through the non-destructive assay equipment and into decontamination, volume reduction, and repackaging facilities would reduce the number of forklift handling operations and enhance safety of the operations staff.



**THE TECHNOLOGY:** The AeroGo, Inc., air pallet system includes air casters, an air hose, and a pressure manifold distribution control box to “float” loads on a virtually frictionless film of air. The reduced friction and omni-directional movement allow the operator to precisely place and align the load in a limited workspace. The low profile of the Aero-Caster Load Module requires less than 3 inches (76 millimeter) of clearance for positioning. Lifting capacity is dependent upon the design and air pressure and can range from a few hundred pounds to hundreds of tons. Once loads are elevated only moderate force is needed to maneuver and position a load. Loads can be accurately positioned as needed for non-destructive assay analysis or for dismantlement. The cost of a simple system starts at approximately \$3,300 and comes with 50 feet of pressure hose and four 20-foot lengths of low-pressure hose.

**THE DEMONSTRATION:** The LANL Integrating Contractor Team demonstrated the AeroGo air-caster system by moving fiberglass-reinforced packages and standard waste boxes as part of the Large Scale Demonstration and Deployment Project, funded by the U.S. Department of Energy’s Deactivation and Decontamination Focus Area at the Federal Energy Technology Center. The demonstration took place in June 1999 at the LANL Solid Waste Operations Area, Technical Area 54, Area G. Packages weighing up to 5600 pounds were moved and positioned in a non-destructive assay system, as well as moved through a maze to demonstrate system flexibility. The operation of the AeroGo system was done exclusively by LANL Solid Waste Operations staff under the direction of AeroGo representatives.

**THE RESULTS:** After less than an hour of training by the AeroGo representative, the technicians were able to use the system to accurately position the large crates in the assay system and move them through the maze. Four LANL staff members were able to move a 5000 pound crate through a 150 foot long maze, rotate the crate 180°, and return the crate to the original position with minimal effort, completing the exercise in less than 3 minutes. The LANL radiation control specialists pointed out that the AeroGo system is advantageous as its geometry offers limited areas for contamination, and decontamination would be straightforward. The system works best on smooth finished floors but will operate over prepared cracks and slightly uneven surfaces.

**BENEFITS:**

- Reduces the need of fork-lift operations with contaminated crates
- Reduces time for precise positioning the crates in the assay system
- Inexpensive system for complex activity
- Reduces potential for contamination and eases decontamination

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